

WHAT IS CLAIMED IS:

1. A saccharide-alkyleneoxy derivative comprising a compound represented by the following formula (1):



wherein A represents a skeleton of a saccharide selected from the group consisting of C₃ to C₁₂ aldoses, ketoses and sugar alcohols; EP represents an ethyleneoxy group and/or a propyleneoxy group; and n represents an average number of the repeating units.

2. The saccharide-alkyleneoxy derivative according to claim 1, wherein the average number (n) of the repeating units in said formula (1) is from 0.5 to 10.

3. A method for producing a saccharide-alkyleneoxy derivative comprising a compound represented by formula (1) below, which method comprises reacting at least one of ethylene oxide and propylene oxide with at least one saccharide selected from the group consisting of C₃ to C₁₂ aldoses, ketoses and sugar alcohols:



wherein A represents a skeleton of a saccharide selected from the group consisting of C₃ to C₁₂ aldoses, ketoses and sugar alcohols; EP represents an ethyleneoxy group and/or

a propyleneoxy group; and n represents an average number of the repeating units.

4. Ink containing at least a coloring material, water, and a saccharide-alkyleneoxy derivative comprising a compound represented by the following formula (1):



wherein A represents a skeleton of a saccharide selected from the group consisting of C₃ to C₁₂ aldoses, ketoses and sugar alcohols; EP represents an ethyleneoxy group and/or a propyleneoxy group; and n represents an average number of the repeating units.

5. The ink according to claim 4, wherein the average number (n) of repeating units in said formula (1) is from 0.5 to 10.

6. The ink according to claim 4, wherein said saccharide-alkyleneoxy derivative has a distributed molecular weight.

7. The ink according to claim 4, wherein said saccharide-alkyleneoxy derivative has a number average molecular weight of 1000 or less.

8. The ink according to claim 4, wherein A in said formula (1) is a skeleton of a saccharide selected from the group consisting of: aldoses having 6 or less carbon atoms, including glyceraldehyde, erythrose, threose, arabinose, xylose, glucose, mannose, talose and galactose; aldoses having from 7 to 12 carbon atoms; ketoses having 6 or less carbon atoms, including erythrulose, ribulose, xylulose, lactose, psicose, tagatose and sorbose; ketoses having from 7 to 12 carbon atoms; sugar alcohols having 6 or less carbon atoms, including glycerol, erythritol, xylitol, sorbitol and mannitol; and sugar alcohols having from 7 to 12 carbon atoms.

9. The ink according to claim 4, wherein said saccharide-alkyleneoxy derivative represented by formula (1) is present in an amount of from 0.1% to 30% by weight based on the weight of said ink.

10. The ink according to claim 4, which further contains one or more C₃ to C₁₂ saccharides selected from the group consisting of: aldoses having 6 or less carbon atoms, including glyceraldehyde, erythrose, threose, arabinose, xylose, glucose, mannose, talose and galactose; aldoses having from 7 to 12 carbon atoms; ketoses having 6 or less carbon atoms, including erythrulose, ribulose,

xylulose, lactose, psicose, Tagatose and sorbose; ketoses having from 7 to 12 carbon atoms; sugar alcohols having from 6 or less carbon atoms, including glycerol, erythritol, xylitol, sorbitol and mannitol; sugar alcohols having from 7 to 12 carbon atoms.

11. The ink according to claim 10, wherein said saccharide-alkyleneoxy derivative represented by formula (1) and said C₃ to C₁₂ saccharides are present, in total, in an amount of from 0.5% to 30% by weight based on the weight of said ink.

Sub A' →
12. The ink according to any one of claims 4 to 11, wherein said ink has a surface tension at 25°C of 40 mN/m or less.

13. The ink according to any one of claims 4 to 12, containing at least one of 0% to 20% by weight of di(tri)ethylene glycol monobutyl ether and 0% to 10% by weight of (di)propylene glycol monobutyl ether, each based on the weight of said ink.

14. The ink according to any one of claims 4 to 12, containing a 1,2-alkylene glycol having from 4 to 10

carbon atoms in an amount of 0% to 10% by weight based on the weight of said ink.

15. The ink according to any one of claims 4 to 12, containing an acetylene glycol surfactant in an amount of 0% to 5% by weight based on the weight of said ink.

16. The ink according to any one of claims 4 to 15, containing at least one substance represented by formula (2) below in an amount of 0% to 10% by weight based on the weight of said ink:



wherein R represents an alkyl group having from 4 to 10 carbon atoms, which may be branched, a cycloalkyl group or a phenyl group; EP represents an ethyleneoxy group and/or a propyleneoxy group; and m represents an average number of the repeating units.

17. The ink according to claim 16, wherein the average number (m) of the repeating units in the substance represented by said formula (2) is from 1 to 10 and, when propyleneoxy groups represented by EP exist, the average number of repeating units of propyleneoxy groups is from 0.5 to 5.

18. The ink according to claim 4, wherein said coloring material is at least one of a water-soluble dye and a water-soluble pigment that is made water-dispersible.

19. The ink according to claim 18, wherein said pigment is made water dispersible by at least one of surface oxidation and coating with a polymer.

20. The ink according to any one of claims 4 to 19, wherein said ink is for ink jet recording.

Sub A² > 21. The ink for ink jet recording according to claim 20, wherein said ink is used in an ink jet recording apparatus having a head which discharges an ink in response to a signal using an electrostrictive device.